Maine Poly, Inc.	**)**	**Departmental**
Androscoggin County	**)**	**Finding of Fact and Order**
Greene, Maine	**)**	**Air Emission License**
A-580-74-B-N	**)**	**After-The-Fact**

After review of the air emission license application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality Control, pursuant to 38 M.R.S.A., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

Maine Poly, Inc. (Maine Poly) produces flexible and antistatic packaging with printed labels and designs at the facility in Greene, Maine. Maine Poly has submitted an application to the Bureau of Air Quality Control to obtain an air emission license for the VOC emissions from the printing operations. Maine Poly is also subject to Chapter 132 (Graphic Arts-Rotogravure and Flexography) of the Bureau of Air Quality Control regulations.

B. Emission Equipment

This license addresses the following emission units at Maine Poly:

Flexographic Presses *

Equipment	Year Installed	Width (inches)	Colors
W & H #1	1984	42	6
Cobden Chadwick	1990	57	8
Cararo	1992	55	6

* All of the above presses will be controlled through a carbon based solvent recovery system. A newly installed ultraviolet press will not be ducted

through the solvent recovery system since there are minimal VOC emissions.

Maine Poly also operates propane fired dryers on each of the presses and has additional propane fired space heaters. The press dryers and space heaters are under 1 MMBtu/hr except for the Cobden Chadwick press which is 3 MMBtu/hr. The smaller units are documented here for inventory purposes.

C. Application Classification

Maine Poly is an existing source which has never had an air emission license. In previous years Maine Poly was under the significant emission levels, as defined in Chapter 100 of the Bureau of Air Quality Control regulations. Emissions have increased at the facility, therefore Maine Poly is required to obtain an air emission license. Maine Poly has submitted an air emission license application to be licensed for an increase of 39 tons/year above the previous levels of just under 40 tons/year. Based on this increase of 39 tons/year, the emissions modification to this existing source is non-major.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in Chapter 100 of the Bureau of Air Quality Control regulations. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT) as defined in Chapter 100 of the Bureau of Air Quality Control regulations. BACT is a top down approach to selecting air emission controls considering economic, environmental and energy impacts.

Before proceeding with the control requirements a general process description is provided to identify where the equipment fits into the process.

Process Description

Maine Poly uses extruded polyethylene film to produce flexible and antistatic packaging. Polyethylene pellets are received in rail cars and unloaded into one of several storage silos. The pellets are extruded under pressure to form a thin film which is cut to the approximate width for the product. There are no quantifiable emissions from either the extrusion process or the lamination process.

The packaging then goes through the flexographic printing area where printing of designs and labels occurs. There are currently four printing presses in operation at the facility. A fifth, an ultraviolet press, is going through trials and testing. All of the presses are the central impression (CI) design. At the presses, several different colors of ink can be applied at individual stations. Each station contains an ink reservoir and rollers to pickup and transfer ink to the substrate. Each station also includes a drying stage to prevent colors from running together. The drying is done mainly by high air flow rather than high temperature. After the film has passed each stage of the press and prior to the film being taken up on the rewind spool, it goes through the final drying stage which does operate at a high temperature since it must provide complete drying before the film is wound. A lamination step is used to strengthen the packaging and protect the printing.

B. Printing Presses

Maine Poly submitted a BACT analysis to the Bureau of Air Quality Control detailing the VOC controls for the facility. The BACT findings included an evaluation of the BACT/LAER Clearinghouse established by the EPA.

Maine Poly has selected a carbon adsorption system to control VOC emissions from the presses with a rated theoretical efficiency of 95%. The majority of the VOC emissions occur during the initial drying step between applications of various colors on the press. Smaller portions of the total emissions occur during the final drying stage. A carbon adsorption pollution control device provides for the recovery of solvents which may be reused in the make-up of new formulations. The carbon adsorption system has an advantage over commonly used thermal oxidizers/incinerators in that thermal oxidizers/incinerators result in the emissions of NO_X which also contributes to the formation of ozone.

Maine Poly has retained Thayer Corporation to design and build a carbon based solvent recovery system. A prototype system was designed and shipped to the site for demonstration purposes. Based on the operation of the prototype unit, a full size recovery system is now being installed. The system will be installed, tested, and fully operational by May 31, 1995.

VOC emissions from the presses and dryers will be collected and delivered to the solvent recovery system which consists of two carbon beds allowing vapor adsorption

in one bed while the second is going through the desorption cycle. The system will have the capacity to treat 12,000 scfm. This exceeds the total rated maximum capacity of exhaust fans from the presses (10,000 scfm). The high volumes of air purged through the press dryers is sufficient to maintain a slightly negative pressure throughout the printing area.

The solvent recovery system uses a P.L.C. computer control system accessible to on-site operators as well as remote access to operators at Thayer Corporation. During the adsorption cycle, a solvent sensor and temperature sensor will measure, and continuously send to the computer, the organic vapor concentration and temperature of clean air exiting the carbon bed. When the organic vapor analyzer shows bed breakthrough, the computer will automatically actuate the inlet valves to bed A and B to place the fresh bed into the adsorption cycle.

The desorption cycle on the saturated bed is activated by the computer controller. The system is first purged with nitrogen to 'inert' the system in order to prevent fires or explosions. Then nitrogen is heated and pumped through the carbon bed, stripping the solvent from the carbon. The concentrated vapor is then passed through a condenser coil where the vapors are condensed and pumped to a recovered solvent storage tank. The safety control of the desorption cycle is maintained by monitoring O_2, temperature, and N_2 pressure.

Recordkeeping will include a computer generated log of the hours of operation of the system showing the times when each bed is in the adsorption or desorption cycles or at rest. A production recordkeeping system will be put into place documenting the number of hours of operation of the presses and the daily volume of each coating (ink) applied along with specification of the coating in terms of mass of VOC per unit volume of coating solids, as applied. A continuous emission monitor (CEM) on the solvent recovery system will record the outlet concentration of VOC as required by Chapter 132, Appendix A, Procedure E(b)(2). Upon completion of the installation of the carbon adsorption system, testing will be conducted to demonstrate the control efficiency of the system and a report will be submitted to the Bureau of Air Quality Control by September 30, 1995.

BACT for the control of VOC emissions from the printing presses includes: the carbon adsorption system, the computer control system to monitor the organic vapor concentration, and the CEM at the outlet of the adsorption system. The facility-wide BACT limit for Maine Poly shall be 79 tons/year of VOCs, based on a 12 month rolling total.

B. Fugitive Emissions (mixing, storage, cleanup)

Fugitive VOC emission sources at Maine Poly include ink mixing, ink stored in open top containers and circulated to the reservoir on the press, waste ink and solvent storage, and cleaning of rollers and ink lines between jobs.

Maine Poly is replacing the existing system for mixing, thinning of inks, and storage with a new computer based automated process which will reduce fugitive VOC emissions and will greatly reduce waste generation by enhancing color specification and enabling the use of waste ink from one run to make up the color for a future batch. The computer controlled color matching and ink mixing INX4000 system has a computer matching and formula storage that will reduce VOC emissions associated with mixing of inks and solvents to achieve the desired color. Additionally, the system allows one batch of ink remaining after completion of a run to be used as the base for a new formulation for a future run. This not only reduces the quantities of waste generated, it reduces VOC emissions from handling and storage of the waste.

Some of the fugitive VOC emissions from open top ink containers adjacent to the presses are being collected as dryer make-up air and thus exhausted with the press exhaust. These emissions will then be controlled by the carbon adsorption system.

BACT for the control of fugitive VOC emissions from Maine Poly includes the use of a computer controlled color matching and ink mixing system and a daily record to document use and composition of cleanup solvents.

III. EMISSION STANDARDS

A. Solvent Recovery Adsorption System

The carbon adsorption control system shall reduce VOC emissions by at least 90% by weight on a monthly basis, based on inlet and outlet measurements to the control unit.

The printing presses shall be captured and controlled to an overall emission reduction efficiency of at least 60%.

Total facility wide emissions from the printing process shall not exceed 79 tons per year, based on a 12 month rolling total.

B. Dryers on the Cobden Chadwick Press

Based on 3 MMBtu/hr heat input capacity, emissions from the propane dryers for the Cobden Chadwick Press shall not exceed the following:

	PM	PM_{10}	SO_2	NO_X	CO	VOC
lb/MMBtu	0.05	0.004	0.01	0.14	0.02	0.01
lb/hr	0.15	0.012	0.03	0.45	0.06	0.03

C. Facility Emissions

Total emissions (PM, SO_2, NO_X, CO, and VOC) from all fuel burning units are below 1 ton/year, based on the fuel use limit of 100,000 gal/year. Emissions from the printing process shall be limited to 79 tons/year.

IV. AMBIENT AIR QUALITY ANALYSIS

The pollutant of concern is VOC and its contribution to the formation of ozone by interacting with NO_X in the atmosphere. Currently ozone modeling is conducted on a regional scale. Therefore, an ambient air quality impact assessments for this individual source of VOC emissions is not required for this license.

V. COMPLIANCE ASSURANCE

A. Maine Poly shall demonstrate compliance through the applicable coating analysis and test methods specified in Appendix A of Chapter 132 of the Bureau of Air Quality Control regulations.

B. The carbon adsorption control unit shall be equipped with continuous monitoring equipment which monitors the VOC concentration from each carbon adsorption bed (as specified in Appendix A, Procedure E(b)(2) of Chapter 132 of the Bureau of Air Quality Control regulations). The monitoring equipment shall be installed, calibrated, operated, and maintained according to the manufacturer's specifications at all times the carbon adsorption unit is in use.

C. Daily records shall be maintained per Condition (20) to document the mass of VOC per unit volume of coating solids, as applied; the volume solids content, as applied; the volume, as applied, of each coating used each day on the printing presses; the actual overall emission reduction efficiency achieved for each day on the printing presses; monitoring data; and operating times.

D. A daily record shall be maintained to document use and composition of cleanup solvents.

E. A copy of this Order shall be kept on-site and the operator(s) must be familiar with the terms of the Order.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards, and
- will not violate applicable ambient air quality standards, or increment standards either alone or in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-580-74-B-N, subject to the following conditions:

(1) Employees and authorized representatives of the Department shall be allowed access to the premises of the licensee during business hours, or any time during which any of the licensed emissions units are in operation, and at such other times as the Commissioner deems necessary for the purpose of performing tests, collecting samples, conducting inspections or examining records relating to emissions.

(2) The licensee shall acquire a new or amended emission license prior to commencing construction of a modification.

(3) The licensee shall comply with all applicable ambient air quality standards, emission standards, Department regulations and orders.

(4) The licensee shall maintain sufficient records to accurately document compliance with emission standards, including visible emission, and license conditions and shall maintain such records for a minimum of 6 years. The records shall be submitted to the Department upon written request.

(5) The licensee shall maintain records of malfunctions, failures, downtime, and any other change in operation of air pollution control apparatus or the emissions unit itself that would affect emissions. The licensee shall notify the Department within two working days (48 hrs.) of such occasions. Within 5 working days, the licensee shall submit a written report describing the cause, duration, remedial action, and steps to be taken to prevent recurrence of such malfunctions, failures or downtimes.

(6) Approval to construct shall become invalid if the source has not commenced construction within 18 months after receipt of such approval or if construction is discontinued for a period of 18 months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology requirements or the ambient air quality impact analysis, or both.

(7) The licensee shall perform stack testing and submit a written report within 90 days of receipt of notice to test from the Department, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions. Such testing shall be conducted in accordance with 40 CFR Part 60 or other method approved or required by the Department. The licensee shall install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing.

(8) The licensee shall establish and maintain a continuing program for best management practices for suppression of fugitive particulate matter during any periods of construction, renovation, or normal operation which may result in fugitive dust and submit a description of the program upon request by the Department.

(9) The licensee shall maintain sufficient records and annually report to the Department, in a specified format, fuel use, operating rates, use of materials and other information necessary to accurately update the State's emission inventory.

(10) The granting of this permit is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from the plans, proposals, and supporting documents must be reviewed and approved by the Department prior to implementation.

(11) Within 60 days receipt of a notification to test from the Department or EPA, or pursuant to any other requirement of this license to perform stack testing, the licensee shall perform stack testing in accordance with the Department's air emission compliance test protocol, and demonstrate compliance with the applicable emission standards. All testing performed pursuant to this condition shall be conducted under circumstances representative of the facility's normal process and operating conditions. Test results indicating emissions in excess of the applicable standards shall be evidence of emission violations subject to enforcement action for each operating day from the date of the test until compliance is demonstrated under normal and representative process and operating conditions. For any emission source whose stack test results yield an emission rate greater than the applicable standard, the licensee shall, within 30 days following receipt of such test results, retest the noncomplying emission source. Any such retesting shall be performed under circumstances representative of the facility's normal process and operating conditions.

(12) Maine Poly shall not exceed an annual fuel use limit of 100,000 gallons of propane per year, based on a 12 month rolling total. Based on this annual limit, total

emissions from fuel burning equipment shall be below 1 ton/yr. Monthly fuel records shall be maintained at the facility.

(13) Emissions from the 3 MMBtu/hr propane dryer on the Cobden Chadwick printing press shall not exceed the following:

	PM	PM_{10}	SO_2	NO_X	CO	VOC
lb/MMBtu	0.05	0.004	0.01	0.14	0.02	0.01
lb/hr	0.15	0.012	0.03	0.45	0.06	0.03

(14) The carbon adsorption control unit shall be operated at all times the printing presses are in operation.

(15) The carbon adsorption control unit shall reduce VOC emissions delivered to the control device by at least 90% by weight on a monthly basis. The carbon adsorption control unit shall provide an overall emission reduction efficiency of at least 60% for the presses.

(16) The carbon adsorption control unit shall be equipped with continuous monitoring equipment which monitors the VOC concentration from each carbon adsorption bed (as specified in Appendix A, Procedure E(b)(2) of Chapter 132 of the Bureau of Air Quality Control regulations). The monitoring equipment shall be installed, calibrated, operated, and maintained according to the manufacturer's specifications at all times the carbon adsorption unit is in use.

(17) Upon completion of the installation of the carbon adsorption system, testing to demonstrate compliance with the required emissions reductions and removal efficiency shall be conducted. A report of the system's performance shall be submitted to the Bureau of Air Quality Control by September 30, 1995. The test methods used shall be those prescribed in Appendix A to Chapter 132 of the Bureau of Air Quality Control regulations or as otherwise approved by the Bureau of Air Quality Control. The test report will include a description of the operating parameters of the system so that such parameters may be used as surrogates for demonstrating continuing compliance between tests.

(18) Maine Poly shall demonstrate compliance through the applicable coating analysis and test methods specified in Appendix A of Chapter 132 of the Bureau of Air Quality Control regulations.

(19) Maine Poly shall collect and record all of the following information each day (records for (d)-(g) shall begin upon startup of the carbon adsorption unit):

a. The name and identification number of each printing press;

b. The mass of VOC per unit volume of coating solids, as applied, the volume solids content, as applied, and the volume, as applied, of each coating used on each printing press;
c. The maximum mass VOC of the coatings used each day on the printing presses;
d. The actual overall emission reduction efficiency achieved for each day for the printing presses as determined using Appendix A, Procedure E of Chapter 132 of the Bureau of Air Quality Control regulations,
f. Monitor data for flow rate, concentration in to the control device, and concentration out of the control device.
g. Identification of all continuous 3-hour periods of operation which either the average VOC concentration or the reading of organics in the exhaust gases is more than 20% greater than the average exhaust gas concentration or reading measured by the organics monitoring device during the most recent determination of reduction efficiency of the carbon adsorber that demonstrated the facility was in compliance.
h. A log of operating time for the capture system, control device, monitoring equipment and each printing press. The log shall include the times when each carbon bed is in the adsorption or desorption cycles or at rest.

(20) Maine Poly shall keep a maintenance log for the capture system, control device, and monitoring equipment detailing all routine and non-routine maintenance performed, including dates and duration of any outages.

(21) Any non-compliance with control device requirements shall be reported and a written report submitted to the Department within 30 calendar days following the occurrence. This written report shall supply the following information: description of the cause, duration, remedial action, and steps to be taken to prevent recurrence of such malfunctions, failures, or downtimes.

(22) A daily record shall be maintained to document use and composition of cleanup solvents.

(23) Annual emissions from the facility shall not exceed 79 tons of VOC per year, based on a 12 month rolling total.

(24) A copy of this Order shall be kept on-site and the operator(s) must be familiar with the terms of the Order.

(25) The term of this order shall be for two (2) years from the date of signature.

DONE AND DATED IN AUGUSTA, MAINE THIS ____ DAY OF _____ 1995.

Maine Poly, Inc.	**)**	**Departmental**
Androscoggin County	**)**	**Finding of Fact and Order**
Greene, Maine	**)**	**Air Emission License**
A-580-74-B-N	**11**	

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:_____
Edward O. Sullivan, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: July 18, 1994
Date of application acceptance: July 20, 1994

Date filed with Board of Environmental Protection:_____

This Order prepared by Kathleen E. Neil, Bureau of Air Quality Control.